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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/813,682	03/31/2004	Engelbertus Antonius Fransiscus Van Der Pasch	081468-0308989	4356

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EXAMINER	
SOUW, BERNARD E	

ART UNIT	PAPER NUMBER
2881	

DATE MAILED: 08/07/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/813,682	VAN DER PASCH ET AL.	
	Examiner	Art Unit	
	Bernard E. Souw	2881	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *05/10/2006 (Amendment)*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-22* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-22* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *31 March 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Amendment

1. The Amendment filed on 05/10/2006 in response to the Final Office Action dated 02/03/2006 has been entered. The present Office Action is made with all the suggested amendments being fully considered.

Claim 12 has been amended.

No claim has been cancelled.

Pending in this Office Action are claims 1-22.

Finality of Last Office Action Withdrawn

2. Upon further considerations the finality of the rejections of the last Office action (02/03/2006) is withdrawn.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 3 and 14 are is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

► Claim 3 recites the limitation "***the*** *second radiation source* ***element***" in line 5. There is insufficient antecedent basis for this limitation in the claim. There is no second

(radiation source) ***element*** ever recited in the parent claim 1, but only a second radiation wavelength range.

► Claim 14 recites the limitation "***the*** *illumination* ***system***" in line 2. There is insufficient antecedent basis for this limitation in the claim. There is no ***illumination system*** ever recited in the parent claim 12, but only a second radiation wavelength range.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-3 and 12-14 are rejected under 35 U.S.C. 102(b) as being anticipated by Nara et al. (USPAT 5,850,279).

► Regarding claims 1 and 12, Nara et al. disclose a lithographic apparatus and method shown in Figs.1-3, comprising a radiation source 32 configured to provide radiation form source 32 to an illumination system (lower part of Fig.1 + 2), as recited in Col.7/ll.23-48, the radiation source 32 configured to provide radiation in a first wavelength range λ1 (through filter 34A) and in a second wavelength range λ2 (through filter 34B), the second wavelength range being different from the first wavelength range, as recited in Col.8/ll.22-53; a support 12 configured to support a patterning device 20, the patterning device configured to impart the radiation with a pattern in its cross-

section; a substrate table 14 configured to hold a substrate 22; a projection system 16A to 16E shown in Fig.1 configured to project the patterned radiation onto a target portion of the substrate 22, as expressly recited in Col.7/ll.23-34.

► Regarding claims 2 and 13, Nara's system or method shown in Figs.1+3 employs a removable filter (34A,B), as shown in Fig.2+3 and recited in Col.8/ll.22-45.

► Regarding claims 3 and 14, Nara's system or method shown in Figs.1+2 employs a radiation director, denoted by arrow B in Fig.3, to direct radiation from the second radiation source element to the illumination system, as recited in Col.8/ll.22-31. Nara's system or method shown in Figs.1+2 further employs *another* radiation director, represented by mirror 38 shown in Fig.2, to direct radiation from the second radiation source element to the illumination system, the first and second radiation source elements expressly recited in Col.8/ll.32-54.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 4, 9, 11, 15-20 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nara et al. in view of Hill (USPAT 6,137,574).

Nara's exposure apparatus or method shows all the limitations of claims 5-8, 11, 16-19 and 22, as previously applied to the parent claims 1 and 12, except the recitation of an EUV wavelength range.

Hill discloses an exposure apparatus capable of radiating in two wavelength ranges, which are not restricted to one wavelength (range) only, but includes the entire wavelength range from X-ray, over XUV, EUV (including 13 nm), VUV (including 157 nm to 193 nm), as well as UV (including 150 nm to 350 nm), as recited in Col.71/ll.62-65 and Col.10-13, wherein the optics for use in the respective wavelength ranges are all conventional and well known in the art, as expressly recited by Hill in Col.74/ll.4-8.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to also include Hill's EUV wavelength range in Nara's exposure apparatus, since EUV wavelengths are known in the art as being capable of smaller focal spot in comparison to longer wavelengths.

It would have been further obvious to one of ordinary skill in the art at the time the invention was made to employ specific optics appropriate to each respective wavelength range, in order to have maximum transmission and lithographic projection, recited by Hill in Col.74/ll.4-8.

One of ordinary skill in the art would have been motivated to modify Nara's exposure apparatus or method by Hill's EUV wavelength range, in order to achieve better resolution of the projected pattern by virtue of the smaller focal spot in comparison to longer wavelengths.

► Regarding claims 4, 9, 15 and 20, the limitation of "*controlled environment*" is inherent in Nara as modified by Hill.

Nara's first wavelength is an "exposure light beam" used for pattern exposure, as recited in Col.8/ll.37-39, and Nara's second wavelength is an "alignment light beam" used for alignment purposes, as recited in Col.8/ll.50-51. As known in the art, an exposure environment is a controlled environment, whereas an alignment is just intended to establish such a controlled environment, i.e., to establish a pattern that is precisely directed and sharply focused (i.e., "*controlled*") on the target wafer. Therefore, Nara's apparatus or method *inherently* meets Applicant's claims.

Similar to Nara's, Hill's first wavelength is also used for lithographic exposure, as recited in Col.71/ll.28-31 in reference to Fig.11, whereas Hill's second wavelength, as used in the interferometry shown in Fig.1A, is used for alignment, as expressly recited in Col.71/ll.29-31. As known in the art, a lithographic exposure must be performed in a vacuum, i.e., a ***controlled environment***. On the other hand, interferometric alignment for positioning the wafer does not need to be performed in such a controlled environment. Thus, Hill's invention *inherently* also meets Applicant's claims.

7. Claims 10 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nara et al. in view of Stryer et al. (USPGPUB 2002/0064796).

Nara et al. disclose all the limitations of claims 10 and 21, as previously applied to the parent claims 1 and 12, except the recitation of specific limitation of using the first

wavelength range for exposing a first pattern on a first substrate, while using the second wavelength range for making a second exposure on a second substrate

Stryer et al. use the first wavelength range for exposing a first pattern on a first substrate, while using the second wavelength range for making a second exposure on a second substrate, in order to save or eliminate certain masking steps, as recited in sect.[0125]/ll.5-13, and more specifically, in claim 42 on pg.19, column 1.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use a second wavelength range for a second exposure on a second substrate, in order the two radiations of different wavelengths do not interfere with each other.

One of ordinary skill in the art would have been motivated to adopt Stryer's method of using a second wavelength for making a second exposure on a second substrate made of different groups of polymer which are sensitive to different wavelengths, in order to save, or eliminate, certain masking steps, as recited in sect.[0125]/ll.5-13: "*It may, further, be desirable in some embodiments to utilize groups which are sensitive to different wavelengths to control synthesis. For example, by using groups which are sensitive to different wavelengths, it is possible to select branch positions in the synthesis of a polymer or eliminate certain masking steps.*"

Double Patenting

Non-Statutory Type Double Patenting

8. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11

F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington,* 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Obviousness Type Double Patenting

9. Claim 1 is rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1, 5 and 6 of U.S. Patent No. 6,924,885. Although the conflicting claims are not identical, they are not patentably distinct from each other because the limitations of present claim 1 are anticipated by those of claims 1, 5 and 6 of the reference patent.

The present limitations of a lithographic apparatus comprising a patterning device including its support, a radiation source (the same as illumination system), a substrate table, and a projection system, are anticipated by the same limitations of reference claim 1, whereas the present limitation of a first and second wavelengths are rendered obvious by the narrower limitations of reference claim 6, which depends on claim 5.

10. Claim 1 is provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 1 of copending Application No. 10/792,909, filed 03/05/2004, issued as USPGPUB 2005/0110965 to

the same Assignee. Although the conflicting claims are not identical, they are not patentably distinct from each other because the limitations of claim 1 of the reference US applications are narrower than those of present claim 1, such that claim 1 is anticipated by the narrower reference claim 1.

The present limitations of a lithographic apparatus comprising a patterning device including its support, a radiation source, a substrate table (the same as holder), and a projection system, as well as a first and second wavelengths, are all anticipated by the limitations of reference claim 1.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

11. Claims 1 and 2 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 1 of copending Application No. 10/734,639, filed 12/15/2003, issued as USPGPUB 2005/0078292 to the same Assignee. Although the conflicting claims are not identical, they are not patentably distinct from each other because the limitations of claim 1 of the reference US applications is narrower than that of present claim 1, such that present claim 1 is anticipated by the narrower reference claim 1.

Regarding claim 1, the present limitations of a lithographic apparatus comprising a patterning device including its support, a radiation source, a substrate table, and a projection system, as well as a first and second wavelengths, are all anticipated by the

limitations of reference claim 1. Therefore, claim 1 is obvious over the narrower reference claim 1.

Regarding claim 2, the additional limitation of a filter makes claim 2 to become about the same in scope as the reference claim 1. Therefore, claim 2 is an obvious variation of reference claim 1

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

12. Claim 1 is provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 18 of copending Application No. 11/242,146, filed 10/04/2005, issued as USPGPUB 2006/0072108 to the same Assignee. Although the conflicting claims are not identical, they are not patentably distinct from each other because the limitations of claim 18 of the reference US applications is narrower than that of present claim 1 (i.e., by an additional limitation of a particle detection system). Although the reference application was filed later 10/04/2005 than the present application (03/31/2004), due to the other --almost identical-- limitations, the present claim 1 is an obvious variant of claim 18 of the reference application.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

13. Claim 1 is provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 9 of copending Application No. 10/957,752, filed 10/05/2004, issued as USPGPUB 2006/0072107 to the same Assignee. Although the conflicting claims are not identical, they are not patentably distinct from each other because the limitations of claim 9 of the reference US applications is narrower than that of present claim 1 (i.e., by an additional limitation of a particle detection system). Although the reference application was filed later 10/05/2004 than the present application (03/31/2004), due to the other --almost identical-- limitations, the present claim 1 is an obvious variant of claim 9 of the reference application.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

RESPONSE TO APPLICANT'S ARGUMENTS

14. Applicant's arguments filed 05/10/2006 have been fully considered but they are not persuasive:

(a) All arguments are moot, because of new grounds of rejections in this Office Action.

(b) Double patenting rejections as applied in the 06/21/2005 non-final action, and repeated in the 02/03/2006 final action, have not been addressed. In this Office Action Double Patenting rejections not only are applied against two copending applications, but new rejections are now applied against one issued patent and four (4) copending

applications (of which 3 rejections are new), i.e., summing up to a total of five (5) Double Patenting rejections. Applicant is required to submit all the five (5) necessary Terminal Disclaimers in response to this Office Action.

Communications

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Bernard E Souw whose telephone number is 571 272 2482. The examiner can normally be reached on Monday thru Friday, 9:00 am to 5:00 pm..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John R Lee can be reached on 571 272 2477. The central fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306 for regular communications as well as for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703 308 0956.

bes

July 11, 2006

JOHN R. LEE
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800